

Paravitrea multidentata (A. Binney)
Striatura nilium (Morse)
Striatura ferrea (Morse)
Hawaiiia minuscula (A. Binney)
Zonitoides arboreus (Say)
Zonitoides nitidus (Mueller)
Retinella burringtoni (Pilsbry)
Retinella rhoadsi (Pilsbry)

These shells and larvae were found in woods near Weston, Lewis Co.; French Creek, Upshur Co.; and Parsons, Tucker Co., West Virginia. (See also, Archer, NAUTILUS 51: 105 Ed.)

GARDEN MOLLUSCA IN EASTERN NORTH AMERICA

BY A. F. ARCHER

In the paper entitled "The Habitats of Land Mollusca in Britain," A. E. Boycott, 1934 (Journal of Ecology, Vol. 22, p. 22) mentions the lack of evidence in the literature that there are mollusks in gardens in the United States outside of imported slugs and snails. He points out that the 100 to 300 years that have elapsed since the area was settled by European man might conceivably have been too short a time for any of the native species to have adapted themselves to gardens and houses. The same situation is said to hold true likewise for Australia, New Zealand, and South Africa, where only imported species are recorded as occurring in gardens.

My own field notes and observations indicate that in the case of eastern North America, at least, there is a fairly considerable number of species occurring in gardens, and that they are by no means all imported species. A number of the native species are as abundant in gardens and around houses as they are in any type of habitat that they occupy. This is as true of the areas that have been settled less than 100 years as it is of those of longer occupation. American gardens vary in nature and quality. Vegetable gardens are frequently disturbed by the plow from year to year; when fallow they may harbor a considerable mollusk population. Flower gardens may be frequently and intensely disturbed by weeding and hoeing, or they may be left more or less to them-

selves especially if planted in large flowering shrubs. The older the garden and the less frequently disturbed it is, the larger is the population of snails and slugs. In urban areas the largest mollusk populations are to be found in vacant lots and neglected slopes. In Ann Arbor, Michigan, such sites may harbor in their aggregate 15500 individual snails and slugs per acre. However, such habitats are not to be considered in this paper although their assemblage of species is nearly identical with that of nearby gardens, though slightly larger.

In dealing with the area of eastern North America I shall consider the general region north of the Mason-Dixon line separately from that south of the line, because there are some noticeable differences between the garden faunas of the two regions. The most outstanding feature of the north is the small number of large native species occupying gardens. In the south quite a number of the regular inhabitants are fairly large.

The species commonly inhabiting gardens in the north are :

Anguispira alternata
Cochlicopa lubrica
Deroceras agreste
Hawaiiia minuscula

Vallonia costata
Vallonia pulchella
Zonitoides arboreus

Of these seven only one is introduced ; three are holarctic in distribution, with only *Cochlicopa* probably autochthonous to Eurasia ; and three are definitely confined to America. On poor, unproductive soils (as in New England) from which *Vallonia* is usually excluded, *C. lubrica* and *Z. arboreus* are still present as common units for the whole area.

Species incidentally but inconstantly inhabiting northern gardens are :

Arion circumscriptus
Deroceras laeve campestre
Gastrocopta armifera
*Helix nemoralis**
*Helix pomatia**
Limax maximus
*Oxychilus cellarium**
Polygyra albolabris

Polygyra thyroidus
*Polygyra appressa fosteri**
Polygyra fraterna
Polygyra hirsuta
Polygyra monodonta
Succinea avara
Succinea ovalis
Zonitoides ligerus

Species marked with an asterisk are very local introductions ; the

Polygyra was brought to New Jersey from southern Illinois; the other species came from Europe. Of the sixteen species only five are not of American origin. *Polygyra albolabris* occurs in gardens in very small numbers.

In the south the following species commonly occur in gardens within their appropriate ranges:

<i>Hawaia minuscula</i>	<i>Polygyra rugeli</i>
<i>Limax flavus</i>	<i>Polygyra thyridus</i>
<i>Mesomphix perlaevis</i>	<i>Polygyra tridentata juxtidentis</i>
<i>Polygyra appressa</i>	<i>Polygyra vannostrandii</i>
<i>Polygyra appressa perigrapta</i>	<i>alabamensis</i>
<i>Polygyra clausa</i>	<i>Zonitoides arboreus</i>
<i>Polygyra hopetonensis</i>	<i>Zonitoides demissus</i>
<i>Polygyra inflecta</i>	

Only one of the fourteen species is of exotic origin.

Species incidentally occurring in southern gardens are:

<i>Anguispira alternata</i>	<i>Oxychilus cellarium*</i>
<i>Deroceras agreste</i>	<i>Polygyra albolabris</i>
<i>Deroceras laeve campestre</i>	<i>Polygyra fallax</i>
<i>Gastrocopta armifera</i>	<i>Polygyra fraterna</i>
<i>Helix aspersa*</i>	<i>Rumina decollata*</i>
<i>Helix nemoralis*</i>	<i>Vallonia pulchella</i>
<i>Limax maximus</i>	

The species marked with an asterisk are localized introductions, all of European origin. Of the thirteen species in this list five are exotic, the rest native species.

An inspection of the entire list reveals the fact that out of twenty-two species in northern gardens five are introductions, leaving about seventy-seven per cent as native species. Of the southern garden mollusks six of the twenty-seven species or twenty-two per cent are of exotic origin. I strongly suspect this list of North American garden mollusks to be incomplete. No account has been taken here of mollusks in or immediately around quite artificial habitats, such as greenhouses.